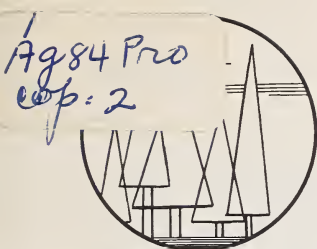


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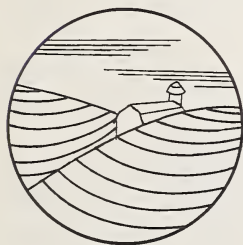
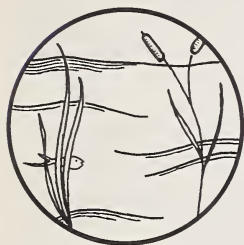


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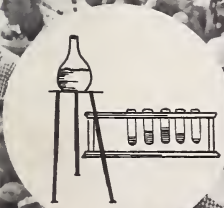
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DEPARTMENT OF AGRICULTURE'S ROLE IN RESOURCE CONSERVATION



U.S. Department of Agriculture
Office of Information
October 1966 PA 781

The Conservation Revolution

Our scientific and technological revolution enables men to walk in space . . . and to consider walking on the surface of the moon tomorrow. Machines now produce other machines, operate factories, regulate traffic, write payrolls, and even talk with other computers doing the same thing.

The scientific and technological revolution also has enabled us to enjoy the benefits of abundance in agriculture and to develop the highest standard of living the world has ever known.

The conservation revolution, now just beginning to flower, may be at one and the same time the most important and the least understood revolution of all.


It is the most important because it deals with the natural resources upon which all life depends—soil, water, plants. It is the least understood because the word conservation itself means many things to many people.

In this publication we attempt to define the word conservation and tell the role the Department of Agriculture plays in this important area.

USDA is responsible for administering programs dealing with the conservation and development of nearly 81 percent of the Nation's total land—all the cropland, the grassland, pasture, and range, and the forest lands in the National Forests and in private ownership.

We have "first" Federal responsibility with respect to the water that falls on this nearly 81 percent of the Nation's land. We have extensive programs of controlling, conserving, and developing this water where it falls—in the forests and on the private lands used for agricultural and other uses.

We take this responsibility seriously—the responsibility to raise the quality of life and to give it new dimension.



ORVILLE L. FREEMAN
Secretary of Agriculture



DEPARTMENT OF AGRICULTURE'S ROLE IN RESOURCE CONSERVATION

The Department of Agriculture's vast conservation activities touch the lives of everyone in the United States.

Its natural resource work benefits food consumers and food processors, farmers and ranchers, hunters and fishermen, factory workers and clerks, highway builders and urban planners, water skiers and bird watchers. Its activities extend from the forested mountains down through the hills, across farmlands into rural communities, to the doorsteps of urban dwellers, and to the water supply in their home.

Today, the Department of Agriculture's broad resource programs are speeding conservation and wise use of soil, water, forests, grass, and wildlife throughout the National Forests and Grasslands and across the three-fourths of the land in private ownership.

The Department's conservation programs include:

- * Research in soils, water, and forestry, much of it in cooperation with State Agriculture Experiment Stations.
- * Educational assistance through the Cooperative Extension Service of the USDA and the land grant universities.
- * Technical assistance through Soil and Water Conservation Districts, the Watershed Protection and Flood Prevention Programs, Resource Conservation and Development projects, and Snow Surveys and Water Supply Forecasts.
- * Multiple-use management of the 186 million acres of National Forests and National Grasslands.
- * Credit assistance through loans to individuals and groups and to local sponsoring organizations of watershed projects and Resource Conservation and Development projects.
- * Financial assistance through loans and cost-sharing with individuals and groups in establishing certain conservation practices under the Agricultural Conservation Program; through loans and cost-sharing under the Watershed Protection and Flood Prevention Program, Resource Conservation and Development projects, and the Great Plains Conservation Program; and through the State Forestry departments.

* Financial assistance through the Cropland Adjustment and Cropland Conversion Programs to assist farmers in the conservation and economic use of land, and aid States and local governments in acquiring cropland for open space, natural beauty, wildlife, or recreation developments.

Conservation is a major national need. Our rapidly increasing population demands more and more from our limited and diminishing resources. As this demand grows, the efficient use of land becomes more complicated. As the use of water mounts on the farm, in our homes, and in industry, the management of the supply becomes increasingly critical.

Conservation is much more than simply keeping what we have. It is much more than restoring what we once had. It is the development, protection, use, and management of all our resources for the needs and enjoyment of all the people. Through it, and it alone, can we improve the quality of our environment.

President Johnson stressed the urgency of resource conservation at Syracuse, New York, this past August when he said:

"Clearly the time for action is at hand. The problems are made by man and can be solved by enlightened man. They are in many ways a reflection of our fantastic growth, our very affluence, our way of life.

"But we will not yield to carelessness or greed in our determination to preserve, unspoiled and unsullied for future generations of Americans, this natural inheritance which we received as our national birthright."

The Department of Agriculture is working to meet this challenge for creative conservation through its activities in flood prevention, erosion and sedimentation control, recreation developments, beautification programs, water supply projects, fish and wildlife developments, and other projects.

Following is a summary of the progress being made in major USDA resource conservation programs.

Conservation Districts

The greatest need for conservation is on the privately owned land that is largely covered by the Nation's 2,900 soil and water conservation districts. Through these districts, which are subdivisions of the States, the USDA channels most of its on-the-land soil and water conservation aid.

Covering 98 percent of the farms and ranches in the United States, the districts are managed by locally elected governing boards and have working agreements with the Department. The districts develop and carry out programs to benefit all in the community.

This program had its beginning 29 years ago in the darkest hours of drought and depression. About 100,000 landowners each year make conservation plans for some 40 million acres. A total of 500 million acres is now under basic plans. The Department's conservation technicians work directly with farmers and ranchers in these districts.

Soil Surveys

More than 50 million acres are surveyed each year by the 1,200 soil scientists employed by USDA. These studies are valuable not only to farmers, but to industry, highway engineers, land appraisers, and urban developers.

Soil is examined to depths of several feet. Scientists note difference in color, stoniness, texture, thickness and arrangement. They also take note of slope, erosion, geologic formations, vegetation and other facts. The scientists determine the best crops for a particular soil and map soil types on aerial photographs of the land.

More than one-third of the Nation's land—862 million acres—has been surveyed in this manner.

With soil information, industries can find sites safe from floods and landslides; builders can locate areas suitable for housing developments.



Soil scientists are tirelessly probing, examining, and mapping the soils from one end of the United States to the other. The soil survey provides the base for most conservation programs.

Water Conservation

Because agriculture is the largest user of water, it has a responsibility for efficient use and conservation of water. Studies have shown that efficiency of water use by farmers could be greatly improved.

A continuing objective of the Department is the management of the National Forests and Grasslands to increase the quantity and improve the quality of water received from these lands. Deteriorated forest watersheds are being rehabilitated and eroding stream channels are being treated.

Watershed Projects

Small watershed projects created through the Watershed Protection and Flood Prevention Act of 1954 offer opportunities to small cities, towns, and rural areas throughout the Nation in stimulating economic growth.

Where projects have been developed for multiple purposes, both urban and rural areas have benefited.

This small lake was designed as part of the Blue Creek Watershed project to halt floods on agricultural land and furnish the community of Pittsfield, Illinois, with an adequate water supply and a recreation area.

Freedom from floods, erosion, and siltation have reduced the risks in farming, lowered maintenance costs on roads and bridges, and freed urban communities from the threat of costly damages.

Water impounded in upstream reservoirs offers opportunities to develop fishing, boating, hunting, swimming, picnicking, camping, and other recreation facilities. The same reservoirs can supply water for irrigation and for municipal and industrial uses to meet the growing needs for water to attract new industries and allow for future expansion of existing industries.

By September 1, 1966, more than 2,500 applications for assistance covering 184 million acres in 49 States and Puerto Rico had been received. Already in operation are 768 watershed projects. Another 447 have been approved for planning assistance.

Local organizations initiate and help plan the projects, build them, help pay for them, and operate and maintain them. USDA offers technical and financial help to the local sponsoring groups.



Resource Conservation and Development Projects

Resource Conservation and Development projects mark a new approach in natural resource development. Since 1964, 20 projects covering some 38 million acres of land have been approved for operations. Six more will be approved for planning assistance in fiscal year 1967.

These projects are initiated and sponsored by local people to provide additional economic opportunities in multi-county areas through accelerated conservation, development, and multiple use of natural resources. More than 600 identifiable project measures have been completed or are underway.

Stubble mulching is one of the conservation practices in the Great Plains that helps to prevent wind erosion and a recurrence of the dust bowl disaster of the 1930's.

Great Plains Conservation

Farmers of the Great Plains, periodically hit by wind erosion and dust storms, have taken the first steps forward in a long range conservation program.

For many years, inability to cope successfully with recurring drought and hot winds made farming and ranching perilous in the Plains. An accelerated soil and water conservation program was begun in 1956 to achieve a measure of agricultural stability. To this end, a large acreage had to be converted from cultivation to permanent vegetation, and much rangeland needed reseeding along with other conserving measures.

Under the Great Plains Conservation Program, farmers and ranchers contract with the Department of Agriculture to apply a complete conservation plan according to a schedule worked out with the aid of skilled technicians.

Farmers and ranchers have signed more than 22,000 agreements on over 42 million acres of land. More than 4,700 farmers are waiting to get into the program. Those who are approved received cost-sharing assistance and technical help on 24 conservation practices.



Sharing the Cost

Cost-sharing plays a key role in getting conservation work done. By paying a part of the cost of certain practices, the Department of Agriculture helps to assure that conservation is carried on in the public interest.

The Agricultural Conservation Program is designed to encourage conservation by sharing with farmers, ranchers, and woodland owners the cost of carrying out approved soil-building and soil- and water-conserving practices including related wildlife-conserving practices. These are

practices which farmers generally would not perform to the needed extent with their own resources.

The rate of cost-sharing averages about 50 percent of the cost. Cost-sharing may be in the form of conservation materials and services or a payment after completion of the practice. Under certain conditions long term loans may be obtained to meet the farmers share of the costs.

Conservation measures offered include those primarily designed to establish permanent protective cover, improve and protect established vegetative cover, conserve and dispose of water, establish temporary vegetative cover, temporarily protect soil from wind and water erosion, and benefit wildlife.

Under the 1964 program new or additional practices were established on 1,080,015 farms and ranches. These contained 159 million acres of cropland and 387 million acres of farmland.

Beginning with the 1966 program, several changes in practices have been made which are designed to help achieve shifts from row crops and small grain crops to less intensive use.

Funds are distributed among the States on the basis of conservation needs.

Appalachian Region Conservation

This Appalachian Region Conservation Program provides loans and cost-sharing assistance to landowners, operators, or occupiers of land in the Appalachian region.



A Missouri farmer gets help with his conservation farm plan from a conservation technician. The farmer is a cooperator in one of 2,900 soil and water conservation districts that cover 98 percent of the farms throughout the Nation.

Contracts with these land users provide for land stabilization, erosion and sediment control, reclamation through changes in land use, and the establishment of measures for the conservation and development of soil, water, woodland, wildlife, and recreation resources.

This program supplements other conservation programs of the Department of Agriculture. Cost-sharing agreements are limited to periods of not less than 3 years nor more than 10 years. The Federal share cannot exceed 80 percent of the treatment cost on not more than 50 acres of land for any person.

About 7,000 agreements were made covering more than 200,000 acres during the period ending June 30, 1966.

Cropland Adjustment and Conversion

The Cropland Adjustment Program (CAP) is designed to assist farmers, through long-term agreements, to divert land from the production of unneeded crops to uses that will promote the development and conservation of our soil, water, forest, wildlife, and recreational resources. The program also will establish, protect and conserve open spaces and natural beauty and prevent air and water pollution.

Producers receive adjustment payments for diverting cropland to approved uses. Also, in certain designated areas they may receive an additional payment for permitting public access to their Cropland Adjustment Program land for hunting, fishing, hiking, or trapping in accordance with State and Federal laws. Producers also will be eligible to receive cost-share assistance for establishing approved conservation uses including needed wildlife conserving measures. The contract period under CAP cannot be less than 5 nor more than 10 years.

Funds appropriated to the CAP may be transferred to any other Federal agency or to States or local governmental agencies for use in acquiring cropland to be permanently retired from crops and devoted to preservation of open spaces and natural beauty, or to the development of wildlife, recreational facilities, or to the prevention of air and water pollution.

The Cropland Conversion Program (CCP) now operating on a pilot basis, is designed to promote the conservation and economic use of land. Long-range agreements are approved with farmers and ranchers to make changes in their cropping systems and land uses.

These agreements are for two purposes:

- To change permanently to better use cropland which is not well suited for crop use.
- To temporarily shift to better use land which is suitable for crop use but not needed for crops at present.

CCP agreements provide for payments, the furnishing of materials and services, and other assistance to farmers. In return, farmers change the land use and install and maintain conservation practices.

Forest Conservation

Management and conservation of 186 million acres of National Forests and National Grasslands are the responsibility of the Department of Agriculture. The Department aims at insuring multiple use and a continuing supply of timber, water, forage, wildlife, special products, natural beauty, and recreation opportunities on these lands.



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Protected from fire, insects, and diseases; trees, water, and soil resources of the National Forests are managed for beauty and use. This is a typical scene on the Challis National Forest in Idaho.

An intensive forest conservation program has the goal of full and prudent utilization of forest resources. Last year timber purchasers harvested 11.2 billion board feet of timber on the National Forests. The harvest provided jobs for thousands as well as a raw material for homes, home furnishings, paper, plastics, rayon and a myriad of other items used by everyone.

The National Forests and Grasslands also hosted an estimated 160 million visitor-days of recreation use. The first National Recreation Area within a National Forest was established September 29, 1965, on the Monogahela National Forest in West Virginia.

Conservation measures accomplished on the National Forests last year include planting and seeding to trees on 232,740 acres and timber stand improvement work (release, weeding, thinning, and pruning) on 433,650 acres.

USDA firefighters kept the acreage burned to a record low of 76,585 acres in 1965. In so doing, they suppressed 9,337 fires. In 1964, 9,749 fires burned 183,154 acres.

More than half the commercial forest area of the United States is held by some 4.5 million forest owners. These small ownerships (less than 2,500 acres each) supply nearly half of the Nation's timber needs.

Several programs are directed toward the productivity of small woodlands. The Department works through State forest agencies to achieve these ends on privately owned lands. USDA cooperates with the States in protecting public and private lands against forest fire, and makes Federal funds available to assist in this effort.

The Department shares with the States the cost of raising tree planting stock which is distributed to landowners at moderate cost. Over 500 million trees were distributed under this program last year. The Department also contributes financially to the furnishing of technical advice and help to the owner who wants to manage his forest land for continuous and profitable production. State-employed professional foresters provide this service. Last year, 99,000 woodland owners received assistance in managing 6.2 million acres of forest land. The Department is also responsible for forest insect and disease control on all forest lands and works with State officials and private landowners to control epidemics.

In partnership with State land grant universities and county governments, the Department works through the Cooperative Extension Service to conduct forestry education. This program provides educational assistance to landowners in establishing, protecting, managing, and renewing woodlots, shelterbelts, windbreaks and other useful forest growth. It also offers information on the harvesting, utilizing, and marketing of forest products.

Department agencies are working together on special projects to re-establish forests, prevent floods, stabilize the soil, and produce timber.

The Department also makes available forestry purpose loans to encourage better forest management on small woodlots and to help make them a full producing part of the family farm or ranch.

Conservation will bring general economic benefits. Improved timber

resources will attract more wood-using industries and create more jobs. Reduction in flood damage will increase future crop yields.

Range Conservation

Forage from the National Forests and National Grasslands helps many ranchers and farmers to round out their year-long livestock operations. The National Forest and National Grasslands range provided summer grazing for 1.4 million cattle and 2.1 million sheep on 19,000 paid permits during the year 1965.

For these permits fees totaling \$3,500,000 were paid and deposited in the Federal treasury.

A continuing program of range improvement includes the construction and maintenance of range improvements needed for more intensive management of the range resource, revegetation, and plant control. Significant progress is being made in correcting long-term problems associated with deteriorated or depleted ranges that were once overgrazed.

Forest Research

Recent events have emphasized the need for a broad look at our approaches to insect control.

Integrated control—the use of both chemical and biological agents in a single unified control program—is an approach that may be applicable to a number of problems. To support this approach, research scientists are obtaining detailed knowledge of several insect pests and their ecological relationships.

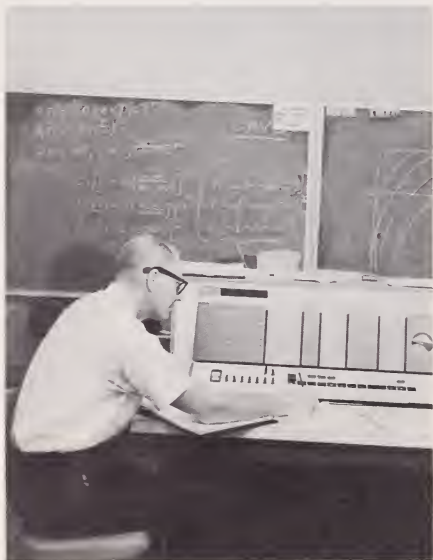
New techniques using other than conventional chemical and biological methods are commanding increased attention. Sterilization has produced good results with several species of insects.

Forest and range research is carried on in 10 regional experiment stations and the Forest Products Laboratory. It deals with timber growth, insects and diseases, management of rangeland and watersheds, forest fire problems, and efficient use of forest products.

Soil, Water, and Economic Research

The scope of USDA's soil and water conservation research is indicated by the type and number of scientists. There are approximately 425 such scientists, including agri-

USDA hydrologist uses an electronic computer to find the solution of a hydro-logic problem of a watershed.



cultural and hydraulic engineers, soil scientists, chemists, plant physiologists, geologists, microbiologists, and other professional staff members. Important economic research is also done on the costs and benefits of conservation practices.

These scientists work to develop systems of conservation and management to permit efficient, sustained, and profitable use of the Nation's resources. As these resources become more strictly limited, research becomes increasingly important.

The competition for water is becoming more acute in many areas. And the growing need for food to supply our own population and fulfill the Nation's international commitments in demanding more effective management of our soils.

The aims of research include:

- Moisture conservation practices for better use of precipitation on cropped and grazed land.
- Better means of conserving water for agriculture, domestic use, industry, and recreation.
- Improving irrigation and drainage facilities and methods, controlling wind and water erosion, and utilizing saline soils.
- Increased knowledge of precipitation patterns and runoff on agricultural watersheds.
- Controlling sedimentation in streams and improving effectiveness of watershed protection and water-supply structures.
- Improving tillage and fertilization practices and modifying the plant environment for more effective use of moisture, soil nutrients, and light.

Pollution Prevention

The Department has an aggressive program of research to prevent or restrict agricultural contamination of water, soil, and air.

Extensive research is underway to reduce the potential hazards of pesticide residues. Biological and other methods of pest control are being devised to supplement or replace pesticides, and pesticide materials and methods of application with less residue hazard are being developed. Intensive monitoring studies are underway to assess what effect pesticide use has on the environment.

Other research is underway on methods of land management to restrict the pollution of air with dust and the contamination of water with sediment and salts. Ways to dispose of animal manures and the wastes from processing agricultural commodities without contaminating water, soil, or air are under study, and the effects of fertilizer residues on the environment are being determined.

Credit

A potent force for conservation has been exercised through the loan program for farmers. The Department finances conservation measures and gives advice on farm management and how to conserve resources.

Loans are made for farm operations and ownership, water development, soil conservation and small watersheds. Such loans also enable farmers to manage forest land more efficiently, to expand forest resources and to convert cropland to woodland.

The interest rate on forestry loans is 3 percent. These loans are aimed specifically at fostering forest development and conservation by small land holders. Other loans bear 5 percent interest.

Over the past 31 years, about \$9.5 billion has been lent to 2.5 million farm families by the Department. Use of these funds has resulted in impressive conservation benefits.

Strip cropping and contouring reduce gully erosion, slow down runoff of excess water, and add a touch of beauty to the countryside.



Education

Research, technical and financial assistance for conservation would be to no avail without public understanding. Education on conservation attitudes and action is the role of the Cooperative Extension Service.

Extension seeks to encourage greater appreciation of our resources by all citizens so they will be motivated to contribute toward wise use and improvement of these resources. The program emphasizes that effective long-range conservation measures cannot be accomplished without an informed and concerned public.

Extension workers help individual farm families learn to rotate crops, plant cover and soil-improving crops,

use strip cropping, contours, terraces, or apply other techniques and physical measures to conserve soil and water.

Extension's conservation education for youth, through 4-H Clubs and training programs for public school teachers, helps assure that the younger generation learns its conservation lessons earlier and better.

The Job Ahead

Resource conservation is no short order project. It takes time. It takes patience. Most of all, it takes understanding and cooperation from all people in all walks of life.



Many of the lakes created through the Small Watershed Program are ideally suited for the development of water-based recreation facilities.

Pictured is a recreation development in West Virginia's South Fork Watershed project.

Our land is limited. We will have no more next year than we have today. But in that relatively short period our population will grow by 2.6 million—twice the present population of North and South Dakota combined.

This population pressure diminishes our resource base. And the quality of our environment suffers with each passing day.

The solution lies in nothing short of an all-out attack on the despoilers of our natural resources. We must become conservation conscious—all of us. We must plan, develop, and use our land and water resources with utmost care.

The Department of Agriculture, entrusted with the conservation responsibilities on 81 percent of our land, will continue its drive to promote and carry effective resource conservation programs.

During fiscal year 1967 the Department expects as many as 500 requests from planning commissions, zoning boards, conservation commissions and other public bodies for assistance in comprehensive land use planning.

It expects to give planning assistance to the sponsors of six new Resource Conservation and Development projects, covering 20 million acres of land.

It anticipates processing 200 new watershed development applications, starting planning operations on 95 new projects, approving a hundred projects for operations, and launching at least 70 new construction starts.

The Department plans to assist between 150 and 200 communities in the development of recreation facilities that will eventually serve more than 100,000 men, women and children.

The Department expects to help around 1,000 communities finance water and sewer systems that will serve approximately one million people.

It expects to do this and more.

There is no substitute for sound resource planning and development for the quality of our tomorrow depends on how we treat our renewable resources today.

